CLAIMS

1. A telecommunications system for providing a facility for communicating internet packet data with a mobile communications user equipment, the internet packet data carrying payload data including a plurality of different data types, the system comprising

a gateway support node operable to provide an interface for communicating the data packets between the user equipment and a packet data telecommunications network,

a service support node operable to communicate the data packets between the gateway support node and the mobile user equipment using a radio network controller, the radio network controller being operable to provide a radio access bearer for communicating the data packets with the user equipment, wherein at least one of the gateway support node and the user equipment are operable

to parse the payload data in each data packet to determine a number of the plurality of different data types and a number of data symbols in each of the different data types,

to generate a radio access bearer sub-flow indicator providing an indication of the number of different types of data in the payload and the number of symbols in each different data type,

to form a transport frame for each data packet by combining the payload data for each data packet with the sub-flow indicator, the transport frame being used to communicate each data packet between the gateway support node and the radio network controller via the service support node, and the data packets are communicated between the radio network controller and the user equipment by

detecting the sub-flow indicator, and in accordance with the sub-flow indicator

arranging for the data from each of the different data fields to be communicated via a different radio access bearer providing different quality of service parameters appropriate for the different data type.

2. A telecommunications system as claimed in Claim 1, wherein at least one of the gateway support node and the user equipment are operable to form the transport frame by generating a service data unit from the payload data and an internet protocol header from each data packet, and combining the service data unit with the sub-flow indictor.

3. A telecommunications system as claimed in Claim 2, wherein the user equipment and the radio network controller each include a packet data protocol layer which is operable

to remove the internet protocol header from the service data unit before communication, and

to add the internet protocol header to the service data unit after communication of the payload data via each of the sub-flow radio access bearers.

4. A telecommunications system as claimed in Claim 2 or 3, wherein the internet header is compression encoded before being combined with the payload data to form the service data unit.

5. A telecommunications system as claimed in Claim 4, wherein the compressed internet protocol header is decompressed when removed from the service data unit to reform the internet packets within the gateway support node.

6. A telecommunications system as claimed in any preceding Claim, wherein the payload data of the internet packet includes a frame of data formed from an adaptive multi-rate speech coded, the data frame providing the plurality of the different types of data.

7. A telecommunications system as claimed in any preceding Claim, wherein the mobile radio telecommunications network is operable in accordance with the General Packet Radio System (GPRS), the gateway support node being a gateway GPRS support node, and the service support node being a service GPRS support node.

8. A method for communicating internet packet data with a mobile communications user equipment, the internet packet data carrying payload data including a plurality of different data types, the method comprising

providing an interface for communicating the data packets between the user equipment and a packet data telecommunications network,

communicating the data packets between the interface and the mobile user equipment using a radio network controller, the radio network controller being operable to provide radio access bearers for communicating the data packets to and/or from the user equipment, wherein the communicating the data packets between the interface and the mobile user equipment comprises

parsing the payload data in each data packet to determine a number of the plurality of different types of data and a number of data symbols in each of the different data types,

generating a radio access bearer sub-flow indicator providing an indication of the number of different types of data in the payload and the number of symbols in each different data type,

forming a transport frame for each data packet by combining the payload data for each data packet with the sub-flow indicator, the transport frame being used to communicate each data packet between the interface and the radio network controller, and

communicating the data packets between the user equipment and the radio network controller by

detecting the sub-flow indicator, and in accordance with the sub-flow indicator

arranging for the data from each of the different data fields to be communicated via a different radio access bearer providing different quality of service parameters appropriate for the different data type.

9. A method as claimed in Claim 8, wherein the forming the transport frame comprises

generating a service data unit from the payload data and an internet protocol header from each data packet, and

combining the service data unit with the sub-flow indictor.

10. A method as claimed in Claim 9, wherein the communicating the data packets between the user equipment and the radio network controller comprises

removing the internet protocol header from the service data unit before communication, and

adding the internet protocol header to the service data unit after communication of the payload data via each of the sub-flow radio access bearers.

11. A method as claimed in Claims 9 or 10, wherein the forming the transport frame comprises

compression encoding the internet header before combining with the payload data to form the service data unit.

12. A method as claimed in Claim 11, comprising

compression decoding the internet header when removed from the service data unit to reform the internet packets within the gateway support node.

13. A method as claimed in any of Claims 8 to 12, wherein the payload data of the internet packet includes a frame of data formed from an adaptive multi-rate speech coded, the data frame providing the plurality of the different types of data.

14. A gateway support node for communicating internet data packets between user equipment and a packet data telecommunications network, the internet packet data carrying payload data which includes a plurality of different types of data, the gateway support node comprising

a data packet processing layer, and

a user data tunnelling layer operable to provide a virtual channel for communicating the processed data packets via an internet protocol communications layer, wherein the data packet processing layer is operable

to parse the payload data in each data packet to determine a number of the plurality of different data types and the number of data symbols in each of the different data types,

to generate a radio access bearer sub-flow indicator providing an indication of a number of different types of data in the payload and a number of symbols in each different data type,

to form a transport frame for each data packet by combining the payload data for each data packet with the sub-flow indicator, the transport frame being used to communicate each processed data packet between the gateway support node and a radio network controller via a service support node using the user data tunnelling layer.

15. A gateway support node as claimed in Claim 14, wherein the data packet processing layer is operable to form the transport frame by generating a service data unit from the payload data and an internet protocol header from each data packet, and combining the service data unit with the sub-flow indictor.

16. A gateway support node as claimed in Claim 15, wherein the data packet processing layer is operable to compression encode the internet protocol header before the internet protocol header is combined with the payload data to form the service data unit.

17. A gateway support node as claimed in Claim 16, wherein the data packet processing layer is operable to compression decode the internet protocol header when removed from the service data unit to reform the internet packets.

18. A gateway support node as claimed in Claim 17, wherein the gateway support node is a gateway general packet radio system support node.

19. A mobile user equipment for receiving internet data packets from a gateway support node according to any of Claims 14 to 18 via a radio network controller, the internet packet data carrying payload data which includes a plurality of different types of data, the user equipment comprising

a plurality of radio access bearers in combination with the radio network controller each radio access bearer providing quality of service parameters appropriate for receiving one of the different types of data of the internet protocol data packet, and

a data packet processing layer operable to reform the internet protocol packet data by combining the different data types into a frame of data determined from a number of data symbol received from each of the different radio access bearers.

20. A user equipment as claimed in Claim 19, comprising a packet data protocol layer operable to add an internet protocol header after communication of the payload data via each of the sub-flow radio access bearers.

21. A mobile user equipment for communicating internet data packets to a gateway support node according to any of Claims 14 to 18 via a radio network controller, the internet packet data carrying payload data which include a plurality of different types of data, the user equipment comprising

an internet protocol packet processing layer operable

to parse the payload data in each data packet to determine a number of the plurality of different data types and the number of data symbols in each of the different data types,

to generate a radio access bearer sub-flow indicator providing an indication of a number of different types of data in the payload and a number of symbols in each different data type, and in accordance with the sub-flow indicator arranging for the data from each of the different data fields to be communicated via a different radio access bearer providing different quality of service parameters appropriate for the different data type.

22. A radio network controller for communicating data between the gateway support node according to any of Claims 14 to 18, and a mobile user equipment according to any of Claims 19 to 21.

23. A computer program providing computer executable instructions, which when loaded on to a data processor configures the data processor to operate as a

gateway service support node server according to any of Claims 14 to 18, a user equipment according to any of Claims 19 to 21 or a radio network controller according to Claim 19.

24. A computer program having computer executable instructions, which when loaded on to a data processor causes the data processor to perform the method according to any of Claims 8 to 13.

25. A computer program product having a computer readable medium having recorded thereon information signals representative of the computer program claimed in Claim 23 or 24.

26. A telecommunications system, a gateway support node, a service support node, a radio network controller or a mobile user equipment substantially as herein before described with reference to the accompanying drawings.

27. A method for communicating internet packet data substantially as herein before described with reference to the accompanying drawings.